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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,812	10/07/2003	Ramesh Varadaraj	RV-0319	4779

7590 03/06/2006

EXXONMOBIL RESEARCH AND ENGINEERING COMPANY
P.O. Box 900
Annandale, NJ 08801-0900

EXAMINER	
WEBB, GREGORY E	

ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/680,812	VARADARAJ ET AL.	
	Examiner	Art Unit	
	Gregory E. Webb	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The following is in response to the applicant's arguments and amendments filed 12/28/05. Based on the applicant's arguments, previous rejections are withdrawn.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 20030170513. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 20030170512. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 20030170511. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 20030165723. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 20030165721. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 20030162061. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 20030170511. Although the

conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,869,706. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,736,867. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,730,138. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. US 20040121202 A. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,653,006. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 20010038934. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims more broadly describe suitable surfactant mixtures.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Dindi (US5539044). Concerning the fuel cell and the hydrocarbon, Dindi teaches the following:

> By way of background, it is known that certain polymers which are oil soluble may be polymerized in the presence of catalysts to produce high molecular weight non-crystalline hydrocarbon soluble polymers by various means. These polymers, when dissolved in a hydrocarbon fluid flowing through a conduit, greatly reduce turbulent flow and decrease "drag" thus reducing the amount of horsepower needed to move a given volume of hydrocarbons, or conversely enable greater volumes of fluid to be moved with a given amount of power. In short, these polymers are drag reducers or flow improvers. Further, dilute solutions of high molecular weight

polymers and solvents such as hydrocarbons, display useful flow characteristics unusual to the commonly known crystalline, largely non soluble, artifact-forming polymers such as polyethylene and polypropylene. In particular, these hydrocarbon soluble materials are noted for their effectiveness as drag reducing agents and anti-misting agents. An anti-misting agent is a polymer which, when dissolved in a hydrocarbon, serves to significantly increase medium droplet size and thereby reduce flammability of fuel sprays caused by high velocity wind shear, such as that which occurs during rupture of a fuel cell resulting from an impact such as an airplane crash.(see col. 1, lines 40-63)

Concerning the emulsion, Dindi teaches the following:

Of the disclosures known to the inventors, perhaps U.S. Pat. No. 4,212,312 is the most nearly related to the invention at hand. It discloses forming drag reducing polymers which are particulated by dissolving the polymers into a low boiling solvent which is water immiscible together with surfactants to form an emulsion and thereafter removing the solvent from the emulsion by flashing.(see col. 4, lines 18-25)

Concerning the surfactant-A and the claimed alcohol, Dindi teaches the following:

9. The process of claim 8 wherein the surfactant is selected from the group consisting of organic ammonium phosphates, ethylene oxide condensates, ethoxylated alcohols, alkyl aryl polyetheralcohols, alkylphenol hydroxypolyoxyethylenes, polyoxyethylene sorbitan monolaurate,

polyethylene glycol ethers of linear alcohols and octylphenoxy polyethoxyethanol.(see claim 9)

Concerning the preferred hydrocarbon, Dindi teaches the following:

The polymer should be placed in a form adequate for easy transportation and handling without exotic or unusual equipment, since injection points for the polymer into the flowing hydrocarbon stream can often be at remote and inaccessible locations. The polymer must also be in a form which dissolves rapidly in the hydrocarbon being transported, since the polymers have little drag reducing effect until solubilized into the hydrocarbon stream. The polymer should also be innocuous to the ultimate purpose of the hydrocarbon fluid. For example, in the case of a crude oil flowing through a pipeline, larger amounts of water and contaminants can be tolerated than in finished pipeline products such as diesel fuel or gasoline which are ultimately destined to be burned in internal combustion engines and the like.(see col. 2, lines 4-16)

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Berlowitz (US6653006).

Concerning the fuel cell, Berlowitz teaches the following:

The present invention combines a conventional fuel cell system with a start-up system to start a vehicle by providing start-up power to a vehicle. A conventional fuel cell system includes a source of fuel, a source of water, a source of air, a reformer, a water gas shift reactor

and a fuel cell. The fuel cell may include many fuel cells in a stack.(see col. 1, lines 42-48)

Concerning the emulsion, Berlowitz teaches the following:

> The fluid dispensed from the emulsion container or the in-line mixer into the reformer can be a fuel-in-water or water-in-fuel emulsion. Further, the fuel-in-water or water-in-fuel emulsions can be macro-emulsions or micro-emulsion or mixtures thereof. A fuel-in-water emulsion is one where fuel droplets are dispersed in water. A water-in-fuel emulsion is one where water droplets are dispersed in fuel. Both type of emulsion requires appropriate surfactants to form the emulsions of the desired droplet size distribution. If the average droplet sizes of the dispersed phase are less than 1 micron in size, the emulsions are generally termed micro-emulsions. If the average droplet sizes of the dispersed phase droplets are greater than 1 micron in size, the emulsions are generally termed macro-emulsions. One skilled in the art of emulsions can choose appropriate surfactants for the type of emulsions desired.(see col. 4, lines 28-44)

Concerning the hydrocarbon, Berlowitz teaches the following:

> (a) a fuel cell reformer to convert a liquid hydrocarbonaceous fuel and water to a hydrogen containing gas, and a fuel cell;(see claim 1)

Concerning the claimed alcohol, Berlowitz teaches the following:

> The water container can be insulated to prevent the water from freezing. Alternately, the water container can be attached to a battery to provide heat to the container at start-up should the water be in a frozen state at

start-up. An on-board water temperature sensor attached to the water container can activate the heating of the water container so that the water is maintained in liquid form. Yet another method to prevent freezing of the water is to add in antifreeze solution comprised of alcohol or alcohol-water mixture to water in the water container in an amount sufficient to lower the freezing point of water. Antifreeze solution can be stored in a separate antifreeze container. The antifreeze container is connected to the water container. The on-board water temperature sensor activates the dispensing of the antifreeze to the water chamber. The antifreeze container can contain alcohols chosen from the group consisting of methanol, ethanol, propanol, ethylene glycol, propylene glycol and mixtures thereof. Water-alcohol mixtures can also be stored in the antifreeze container. In the fluid dispensed into the emulsion container, the water:alcohol ratio can vary from about 99.1:0.1 to about 20:80, preferably 90:10 to 70:30.(see col. 2, lines 37-58)

Concerning the preferred hydrocarbon, Berlowitz teaches the following:

17. The fuel cell system of claim 1 wherein said fuel is gasoline, kerosene, jet, or diesel fuel and combinations thereof.(see claim 17)

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Berlowitz, Paul J. (US20030082419).

Concerning the fuel cell, Berlowitz, Paul J. teaches the following:

[0007] The present invention combines a conventional fuel cell system with a start-up system to start a vehicle by providing start-up power to a vehicle. A conventional fuel cell system includes a source of fuel, a source of water, a source of air, a reformer, a water gas shift reactor and a fuel cell. The fuel cell may include many fuel cells in a stack.

Concerning the emulsion, Berlowitz, Paul J. teaches the following:

[0023] The fluid dispensed from the emulsion container or the in-line mixer into the reformer can be a fuel-in-water or water-in-fuel emulsion. Further, the fuel-in-water or water-in-fuel emulsions can be macro-emulsions or microemulsion or mixtures thereof. A fuel-in-water emulsion is one where fuel droplets are dispersed in water. A water-in-fuel emulsion is one where water droplets are dispersed in fuel. Both type of emulsion requires appropriate surfactants to form the emulsions of the desired droplet size distribution. If the average droplet sizes of the dispersed phase are less than 1 micron in size, the emulsions are generally termed micro-emulsions. If the average droplet sizes of the dispersed phase droplets are greater than 1 micron in size, the emulsions are generally termed macro-emulsions. One skilled in the art of emulsions can choose appropriate surfactants for the type of emulsions desired.

Concerning the hydrocarbon, Berlowitz, Paul J. teaches the following:

1. A fuel cell system comprising: (a) a fuel cell reformer to convert a liquid hydrocarbonaceous fuel to a hydrogen containing gas, and a fuel cell; (b) a fuel cell start-up system connected to said reformer, said start-up system including a source of an emulsion.(see claim 1)

Concerning the claimed alcohol, Berlowitz, Paul J. teaches the following:

[0011] The water container can be insulated to prevent the water from freezing. Alternately, the water container can be attached to a battery to provide heat to the container at start-up should the water be in a frozen state at start-up. An on-board water temperature sensor attached to the water container can activate the heating of the water container so that the water is maintained in liquid form. Yet another method to prevent freezing of the water is to add in antifreeze solution comprised of alcohol or alcohol-water mixture to water in the water container in an amount sufficient to lower the freezing point of water. Antifreeze solution can be stored in a separate antifreeze container. The antifreeze container is connected to the water container. The on-board water temperature sensor activates the dispensing of the antifreeze to the water chamber. The antifreeze container can contain alcohols chosen from the group consisting of methanol, ethanol, propanol, ethylene glycol, propylene glycol and mixtures thereof. Water-alcohol mixtures can also be stored in the antifreeze container. In the fluid dispensed into the emulsion container, the water:alcohol ratio can vary from about 99.1:0.1

to about 20:80, preferably 90:10 to 70:30.(par#29)

Concerning the preferred hydrocarbon, Berlowitz, Paul J. teaches the following:

19. The fuel cell system of claim 1 wherein said fuel is gasoline, kerosene, jet, or diesel fuel and combinations thereof.(see claim 19)

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Graham, David E. (US20030138373).

Concerning the fuel cell, Graham, David E. teaches the following:

[0212] 3. Fuel Cells--Steam reforming a water blended hydrocarbon feedstock composition to produce hydrogen as feed for fuel cells such as proton exchange membrane cells.

Concerning the emulsion, Graham, David E. teaches the following:

5. The process of claim 1 wherein the water blended hydrocarbon feedstock composition formed in step (A) is a water-in-oil emulsion, an oil-in-water emulsion or a micro-emulsion.(see claim 5)

Concerning the hydrocarbon, Graham, David E. teaches the following:

[0046] The hydrocarbon feedstock may be comprised of a gaseous hydrocarbon dispersed or dissolved in a liquid hydrocarbon. The liquid hydrocarbon may be any of the above mentioned liquid hydrocarbons. The liquid hydrocarbon may be a normally liquid hydrocarbon fuel. The gaseous hydrocarbon may be a hydrocarbon having 1 to about 5 carbon atoms per molecule. The gaseous hydrocarbon may be methane (or natural gas).

Concerning the surfactant-A, Graham, David E. teaches the following:

32. The process of claim 1 wherein the surfactant (iii)(d) comprises an alkylaryl sulfonate, amine oxide, carboxylated alcohol ethoxylate, ethoxylated alcohol, ethoxylated alkyl phenol, ethoxylated amine, ethoxylated amide, ethoxylated fatty acid, ethoxylated fatty esters, ethoxylated fatty oil, fatty ester, glycerol ester, glycol ester, sorbitan ester, imidazoline derivative, lecithin, lecithin derivative, lignin, lignin derivative, monoglyceride, monoglyceride derivative, olefin sulfonate, phosphate ester, phosphate ester derivative, propoxylated fatty acid, ethoxylated fatty acid, propoxylated alcohol or alkyl phenol, ethoxylated alcohol or alkyl phenol, sorbitan derivative, sucrose ester, sulfonate of dodecyl or tridecyl benzene, naphthalene sulfonate, petroleum sulfonate, tridecyl or dodecyl benzene sulfonic acid, sulfosuccinate, sulfosuccinate derivative, or mixture of two or more thereof.(see claim 32)

Concerning the claimed alcohol, Graham, David E. teaches the following:

[0103] The alcohols which are useful for reacting with the acylating agent to form the surfactant (iii)(a) include the polyols discussed above as being useful as linking compounds (III) for linking the acylating agents (I) and (II). Also included are mono-alcohols. The mono-alcohols may contain from 1 to about 40 carbon atoms, and in one embodiment 1 to about 20 carbon atoms. Examples include methyl alcohol, ethyl alcohol, n-propyl

alcohol, isopropyl alcohol, n-butyl alcohol, isobutyl alcohol, sec-butyl alcohol, tert-butyl alcohol, n-pentyl alcohol, isopentyl alcohol, tert-pentyl alcohol, cyclopentanol, n-hexyl alcohol, cyclohexanol, n-heptyl alcohol, n-octyl alcohol, n-decyl alcohol, n-dodecyl alcohol, n-tetradecyl alcohol, n-hexadecyl alcohol, n-octadecyl alcohol, allyl alcohol, crotyl alcohol, methylvinyl carbinol, benzyl alcohol, alpha-phenylethyl alcohol, beta-phenylethyl alcohol, diphenylcarbinol, triphenylcarbinol, cinnamyl alcohol, and mixtures of two or more thereof.

Concerning the preferred hydrocarbon, Graham, David E. teaches the following:

8. The process of claim 1 wherein the hydrocarbon feedstock comprises naphtha, diesel fuel, fuel oil, kerosene or gasoline.(see claim 8)

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

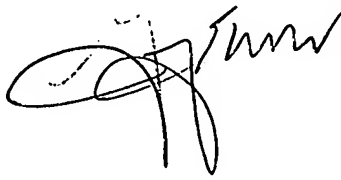
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory E. Webb whose telephone number is 571-272-1325. The examiner can normally be reached on 9:00-17:30 (m-f).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglass McGinty can be reached on (571)272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory E. Webb
Primary Examiner
Art Unit 1751

gew